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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Lei Shao

Title: MULTIPLE ANTENNA SYSTEMS AND METHODS USING HIGH-THROUGHPUT  
SPACE-FREQUENCY BLOCK CODES

Docket No.: 884.B52US1

Serial No.: 10/814,113

Filed: March 30, 2004

Due Date: N/A

Examiner: Unknown

Group Art Unit: 2631

**MS Amendment**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

We are transmitting herewith the following attached items (as indicated with an "X"):

- ☒ Return postcard.
- ☒ Information Disclosure Statement (2 pgs.), Form 1449 (5 pgs.), and copies of 57 cited documents, including the International Search Report for corresponding PCT Application No. PCT/US2004/029698 (7 pgs.).

If not provided for in a separate paper filed herewith, Please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

Customer Number 21186

By:

Atty: Ann M. McCrackin

Reg. No. 42,858

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 30<sup>th</sup> day of October, 2006.

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Signature

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.

(GENERAL)

S/N 10/814,113



PATENT

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Applicant:	Lei Shao	Examiner:	Unknown
Serial No.:	10/814,113	Group Art Unit:	2631
Filed:	March 30, 2004	Docket:	884.B52US1
Title:	MULTIPLE ANTENNA SYSTEMS AND METHODS USING HIGH-THROUGHPUT SPACE-FREQUENCY BLOCK CODES		
Assignee:	Intel Corporation	Customer Number:	21186

**INFORMATION DISCLOSURE STATEMENT**

MS Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicant respectfully requests that this Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicant requests that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicant with the next official communication.

Five of the documents, listed on the attached 1449, were discovered as a result of a Search Report in Applicant's corresponding foreign patent application. Enclosed for the Examiner's information are copies of the Search Report and the cited documents, which are:

1. Bölcskei, H., et al., "Space-Frequency Coded MIMO-OFDM With Variable Multiplexing-Diversity Tradeoff";
2. Ma, X., et al., "Complex Field Coded MIMO Systems: Performance, Rate, and Trade-Offs";
3. Paulraj, A., "Introduction to Space-Time Wireless Communications" (4 pgs.)
4. Shao, L., "High Rate Space Frequency Block Codes for Next Generation 802.11 WLANs";
5. Wang, Z., "Complex-Field Coding for OFDM Over Fading Wireless Channels"

## INFORMATION DISCLOSURE STATEMENT

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Serial No :10/814,113

Dkt: 884.B52US1

Filing Date: March 30, 2004

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Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement. However, if an Office Action on the merits has been mailed, the Commissioner is hereby authorized to charge the required fees to Deposit Account No. 19-0743 in order to have this Information Disclosure Statement considered.

Pursuant to 37 C.F.R. 1.98(a)(2), Applicant believes that copies of cited U.S. Patents and Published Applications are no longer required to be provided to the Office. Notification of this change was provided in the United States Patent and Trademark Office OG Notices dated October 12, 2004. Thus, Applicant has not included copies of any US Patents or Published Applications cited with this submission. Should the Office require copies to be provided, Applicant respectfully requests that notice of such requirement be directed to Applicant's below-signed representative. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

The Examiner is invited to contact the Applicant's Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,

LEI SHAO

By his Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
Attorneys for Intel Corporation  
P.O. Box 2938  
Minneapolis, MN 55402  
(612) 349-9592

Date Oct. 30, 2006

By Ann M. McCrackin  
Ann M. McCrackin  
Reg. No. 42,858

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JAMES KAUSIK  
Name

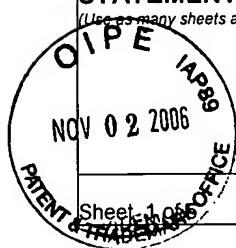
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Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)



Sheet 1 of 6

Complete if Known

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<b>Filing Date</b>	March 30, 2004
<b>First Named Inventor</b>	Shao, Lei
<b>Group Art Unit</b>	2631
<b>Examiner Name</b>	Unknown

Attorney Docket No: 884.B52US1

**US PATENT DOCUMENTS**

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Filing Date If Appropriate
	US-2001/0033611A1	10/25/2001	Grimwood, M., et al.	03/01/2001
	US-2002/0173271A1	11/21/2002	Blair, J. L. et al.	03/21/2001
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	US-2005/0031047A1	02/10/2005	Maltsev, A. A., et al.	12/16/2003
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**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	T <sup>2</sup>
	EP-0939527A1	09/01/1999	Ralf, B., et al.	
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**EXAMINER****DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Complete if Known

<b>Application Number</b>	10/814,113
<b>Filing Date</b>	March 30, 2004
<b>First Named Inventor</b>	Shao, Lei
<b>Group Art Unit</b>	2631
<b>Examiner Name</b>	Unknown

Sheet 2 of 5

Attorney Docket No: 884.B52US1

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	T <sup>2</sup>
	WO-03/001702A1	01/03/2003	Walton, J. R., et al.	
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**OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		"802.11g™ IEEE Local and Metropolitan Area Networks; Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications; Amendment 4: Further Higher Data Rate extension in the 2.4 GHz Band", <u>IEEE Std. 802.11Gtm-2003</u> , The Institute of Electrical and Electronics Engineers, Inc. NY, (June 27, 2003), 78 pgs.	
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		BANGERTER, B., et al., "High-Throughput Wireless LAN Air Interface", <u>Intel Technology Journal</u> , 7(3), <a href="http://developer.intel.com/technology/itj/index.htm">http://developer.intel.com/technology/itj/index.htm</a> , (August 9, 2003), 47-57	
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**OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS**

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		PAULRAJ, A., "Introduction to Space-Time Wireless Communications", <u>Introduction to Space-Time Wireless Communications</u> , Cambridge University Press, Cambridge, UK, (May 2003), 4 pgs.	
		RENDE, D., et al., "Bit Interleaved Space-frequency Coded Modulation for OFDM Systems", <u>IEE International Conference on Communication</u> , Vol.1 of 5, Wireless Information and Networking Group, (ICC 2003), (May 11, 2003), 2827-2831	
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		ZHEN, L., et al., "A Modified Sub-Optimum Adaptive Bit and Power Allocation Algorithm in Wideband OFDM System", <u>Canadian Conference on Electrical and Computer Engineering, (CCECE 2003), Vol. 3 of 3, (May 4, 2003), 1589-1592</u>	

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